AMENDMENTS TO THE DRAWINGS

One Sheet of Replacement Drawings (FIG. 3) is attached at the end of this Amendment in order to designate polypropylene 11pp, 12pp or polyethylene film 11pe, 12pe and a biaxially drawn nylon film 11n, 12n being used for the front sheet 11 and the rear sheet 12, and polyethylene film 13pe and an inextensible nylon film 13n is used for the bottom sheet 13, in the bag 1 for containing an article.

REMARKS

By way of this Reply, claims 4 and 5 are cancelled herein without prejudice to or disclaimer of the subject matter set forth therein. Claim 3, 6, and 7 were previously cancelled. Claims 1, 2, 8, and 9 are pending. Claims 1, 2, 8 are amended, and claim 9 is added. Claim 1 is independent. The Examiner is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein.

Request for Interview

To advance the prosecution of the present application, Applicant respectfully requests that the Examiner grant an interview with Applicant's Representative, Carl T. Thomsen, Registration No. 50,786, at 1-703-208-4030 (direct line) at a time of his convenience.

Objection to the Drawings

In the Examiner's objection to the drawings, the Examiner alleges that "the laminate front sheet, rear sheet and bottom sheet" are not shown in the drawings. In response, one sheet of Replacement Drawings (FIG. 3) is attached at the end of this Amendment in order to designate polypropylene 11pp, 12pp or polyethylene film 11pe, 12pe and a biaxially drawn nylon film 11n, 12n being used for the front sheet 11 and the rear sheet 12, and to designate polyethylene film 13pe and an inextensible nylon film 13n is used for the bottom sheet 13, in the bag 1 for containing an article.

Accordingly, the objection to the drawings should be withdrawn by the Examiner.

Amendments to the Specification

Applicant has voluntarily amended paragraphs [0011], [0026], [0030], [0031], [0032], [0046], [0047], [0050], [0054], [0063], and [0064] in order to provide antecedent basis for polypropylene 11pp, 12pp or polyethylene film 11pe, 12pe and a biaxially drawn nylon film 11n, 12n being used for the front sheet 11 and the rear sheet 12, and polyethylene film 13pe and an inextensible nylon film 13n is used for the bottom sheet 13, in the bag 1 for containing an article as illustrated in FIG. 3, and as set forth in claim 1. No new matter has been added.

Rejections Under 35 U.S.C. § 103(a)

Claim 1, 4, 5, and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Etesse et al. (EP 0 626 319 A1) in view of Kuge et al. (U.S. Patent 6,478,190); and

claims 1, 2, 4, 5, and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bustin (U.S. Patent 4,353,497) in view of Kuge et al.

These rejections are respectfully traversed.

Amendments to Independent Claim 1

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, independent claim 1 is amended herein to recite a combination of elements directed to a bag for containing an article, including *inter alia*

"wherein the article containing portion (2) of the deaeratable bag is adapted to deaerate and store an article (M) that is large in volume because the article include air by compressing the article including the air", *(See paragraph [0007] of U.S. Publication No. 2005/0078889 of the present application for support.)*

"when the article (M) is disposed in the article containing portion (2) and disposed so that the bottom portion of the bag move downward, and a weight of the article (M) is supplied to the bottom sheet (13)", *(See paragraph [0045] of U.S. Publication No. 2005/0078889 of the present application for support.)*

"wherein an upper edge (11a) of the front sheet (110 and an upper edge (12a) of the rear sheet (12) are not adhered together, but an open portion (3) is formed so that the article (M) can be placed in and taken from the article containing portion (2), and a chuck (31) is attached to the opening portion (3) so that a deaerated state can be maintained when the article containing portion (2) is deaerated", *(See paragraph [0024] of U.S. Publication No. 2005/0078889 of the present application for support.)*

"wherein the bottom sheet (13) is located opposite to the opening portion (3)", *(See FIGS. 1-3 for support.)*

"wherein a laminate sheet of film selected from a group consisting a polypropylene (11pp, 12pp) film and a polyethylene film (11pe, 12pe), and a biaxially drawn nylon film (11n, 12n) are used for the front sheet (11) and the rear sheet (12)", *(See now-cancelled claim 4 for support.)*

wherein the bottom sheet (13) is a co-extrusion film including the nylon film (13n) to which drawing has not been administered, and the polyethylene film (13pe) laminated together, the polyethylene film (13pe) being disposed on at least one of a surface side and an undersurface side of the nylon film (13n), and

wherein the bottom sheet (13) formed of the co-extrusion film, including the nylon film (13n) to which drawing has not been administered and the polyethylene film (13pe) laminated together, is easier to stretch in comparison to the laminate sheet of the biaxially drawn nylon film used for the front sheet (11) and the rear sheet (12), and

wherein the laminate sheet of the bottom sheet (13) is easier to stretch, in comparison to the laminate sheet of the biaxially drawn nylon film used for the front sheet (11) and the rear sheet (12), and the extensibility and tearing resistance of the bottom sheet (13) are higher than the extensibility and tearing resistance of the front sheet (11) and the rear sheet (12),

the bottom sheet (13) having a tensile ductility of 400% to 800%. *(See now-cancelled claim 5 for support.)*

Arguments and Report of Experiment Regarding Independent Claim 1

Following are arguments describing the patentable difference between independent claim 1 of the present invention and the disclosures in the references cited by the Examiner.

In addition, a Report of the Experiment described in paragraphs [0049] and [0057] of U.S. Publication No. 2005/0078889 of the present application is attached at the end of this Reply. This Report clearly demonstrates the unexpected results not found in the conventional art and only achieved by the present invention, as set forth in the claims of the present invention.

In presenting arguments below, Applicant makes reference to several specific sections of the Manual of Patent Examination Procedure (MPEP).

MPEP 2141.01(a) - II

The present invention relates to a deaeratable bag for containing an article, volume of which is large because of air inside thereof, such as bedding or clothing. When the bag contains an article such as that, the weight of the article is mainly applied to the bottom in the movement of the article. Due to this, a force F shown in FIG. 4(B) may be generated. To the contrary, cited references relate to a bag for liquid or fluid, and the weight of the contents is not only applied to the bottom, but, simultaneously to the sides. This does not cause a problem of tearing at the contact points of the bottom sheet and the front and rear sheets.

In view of this, the bag claimed in the present invention is different from the bags described the cited documents, both in structure and function. It is not proper for the Examiner to rely on documents which disclose devices that are different in structure and function for the purpose of analyzing the obviousness of the subject manner at issue.

MPEP 716.02(a)

Stated above, the bag claimed in the present invention is different from the bags described in the cited documents, both in structure and function. Therefore, an unexpected result that is not found in the cited documents is achieved by the present invention.

In amendments to the claims, the bottom sheet has a tensile ductility ranging from 400% to 800%, setting lower and upper limits. A tensile ductility more than 400% means that a portion in the vicinity of the contact points P (contacting points of the front sheet 11 and the bottom sheet 13, as well as the rear sheet 12 and the bottom sheet 13) stretches without tearing the contact points P, then a deaerated condition is maintained. A tensile ductility less than 800% means that an article containing portion stably holds the article in the bag avoiding sagging under the weight of the article in the bag. The additional experiment showed this fact. (See Report at an end of this Reply). This result is greater than expected in view of the cited documents.

MPEP 2143.01-I

European Patent Application No. 0 626 319 A1 to Etesse et al. (hereinafter, Etesse) and U.S. Patent No. 4,353,497 to Bustin (hereinafter, Bustin), each aim at strengthening the bottom sheet entirely, while the present invention aims to maintain the bag deaerated without tearing the contact points P shown in FIG. 5. U.S. Patent No. 6,478,190 to Kuge (hereinafter, Kuge) is not directed to the purpose of the present invention either. Therefore, the present invention is directed completely differently from the objective of the cited documents.

A material easy to stretch may be taught as a weak material for a component of a deaeratable bag, since such deaeratable bags are repeatedly used to discharge air inside thereof. Those in the art recognize by their common knowledge that the practical incorporation of a weak material that deforms without difficulty would not be proper for repetitive use of the bag.

The present inventor originated the idea to incorporate such an unusual and novel material in the bag, and this idea stands against the common knowledge of those skilled in the art of the present invention. Those in the art would generally avoid tearing the contact points P by making the bottom sheet stiff, as disclosed in Etesse or Bustin. This is a counter-idea to the present invention. The present inventor conceived of the idea to deliberately make the bottom sheet "weak" and easy to deform for the purpose of avoiding tearing of the bottom sheet and losing deaeration inside the bag, and this idea would have presented a problem in the light of common knowledge among those in the art. Therefore, the unique idea of the present invention would not be obvious to one skilled in the art when the present invention was made.

Such an idea reminds Applicant of the traditional Japanese architectural structure compared to the Western-style structure. The former leads to a well-built yet flexible construction with wood and bamboo, while the latter leads to a heavy-duty construction with stone and concrete. The teachings of Etesse or Bustin relate to the latter, not to the former.

The cited documents only show the art within the bounds of common sense among those in the art. For instance, several examples of laminate disclosed by Kuge et al. are treated on the equal basis, and do not seem to include description that could be construed as having employed a non-oriented nylon film by being encouraged by an easy-to-stretch characteristics. This may back up the conventional knowledge among those in the art at the time the invention was made. Further, Kuge et al. do not provide any description that would motivate one to select a laminate sheet including non-oriented nylon film even against what is common known among those in the art. As mentioned above, since it is beyond common knowledge for those in the art to employ an easy-to-stretch material, the documents cited by the Examiner would not teach or suggest the present invention, and would not give motivation to one to one in the art to arrive at the present invention.

Therefore, selecting an easy-to-stretch material, such as that above, is not obvious to those in the art.

MPEP 2143.01-II, 2145-X-D3

In Etesse and Bustin, a stiff material is used for the base portion. Kuge teaches a laminate sheet including non-oriented nylon film, which is an easy-to-stretch material, i.e. a flexible material. However, what Kuge teaches (a flexible material) has exactly opposite characteristics to, and conflicts that which Etesse and Bustin teach (a stiff material). It is not conceivable even for one in the art to replace that which one of the cited references teaches with that which another reference that conflicts with it. Therefore, one in the art would not conceive of the idea to replace a material taught by Etesse and Bustin with a material taught by Kuge, which has an exactly opposite characteristic to the material of Etesse and Bustin.

MPEP 2143.01-III, 2143.01-IV

The mere fact that the Examiner has combined Etesse and Kuge or the Examiner has combined Bustin and Kuge does not lead to a motivation for these combinations, and the motivation is not found in the cited references. Further, it cannot be said that it is commonly known for one in the art to combine these references. Therefore there is no suggestion to one in the art to combine these references. Therefore, capability of combination of references made by the Examiner is not sufficient to establish obviousness when there is no objective basis to combine the cited references.

MPEP 2143.01-V, VI

In Etesse and Bustin, a stiff material is used for the purpose of reinforcing the bottom sheet entirely. Since contents of the bag in Etesse and Bustin are liquid or fluid, the bottom sheet equally retains the weight of contents in the bag. However, in case the bottom sheet is made of a material disclosed by Kuge, the bottom sheet becomes more likely to stretch, thus being unable to achieve the purpose of reinforcing the bottom entirely. Therefore, the combination of the cited references will change the principle of operation. A combination of Etesse and Kuge, or a combination of Bustin and Kuge, would not be the basis of obviousness of the present invention.

MPEP 2144.06

In Etesse and Bustin, a stiff material is used for the purpose of strengthening the bottom of the bag. On the other hand, there is no description in Kuge of a material to strengthen the bag. In the present invention, the bottom has a nature of being easy to stretch in order not to tear. In other words, the bottom of the bag is not strengthened, but is "weakened". This is opposite to the teachings of the cited references.

MPEP 2145-II

The Examiner stated in the outstanding Office Action that Applicant has recognized another advantage which would flow naturally from following the suggestion of the cited references. The bags claimed in Etesse and Bustin are respectively self-standing bags for liquid. Kuge discloses a cartridge that receives fluid materials. Contrary to these bags, the present invention claims an deaeratable bag in which an article M, such as bedding or clothing, the volume of which is large because it includes air inside, is compressed and stored compactly. The situation of the bags of the cited references are used is completely different.

Bags require characteristics depending on how they are used. What one skilled in the art can be expected to refer to is only the relevant art. It is not natural to refer to the art that is not relevant to the present invention.

Therefore, if a person tries to recognize an advantage different from that shown in the cited references, he will find in the art of these bags, a usage which is completely different from the present invention. After that, he will change the engineering design of that found in the art to adjust to the usage of the bag claimed in the present invention. This would not naturally flow. In other words, this is not applicable to MPEP 2145, which says "...another advantage which would flow naturally...".

MPEP 2145-X-A

It appears that the Examiner has combined references in mere hindsight, and without reasonableness.

The present inventor has used an easy-to-stretch material that one in the art has never used as a component for the deaeratable bag, and in spite of that which was common known among those skilled in the art, he has created a superior bag. No one but the present inventor ever had such a creative idea, and there is no evidence that anyone else would be motivated to develop the present invention.

A non-oriented nylon film recited in Kuge is only an example disclosed as a laminate. Without the present inventor's unique idea, one in the art would not apply the non-oriented nylon film of Kuge to the bags in Etesse or Bustin.

It would have been beyond the thought of those in the art to replace a certain part of the structure of the bags as set forth in the reference of Etesse or Bustin with a laminate including a non-oriented film, which happened to be exemplified as a laminate sheet recited in the specification of Kuge, when the present invention was made. It is mere hindsight for it to seem easy to have such a thought at this time.

At least for the reasons explained above, Applicant respectfully submits that the combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Etesse et al., Kuge et al., and Bustin.

Therefore, independent claim 1 is in condition for allowance.

The Examiner is also directed to the Report of the Experiment described in paragraphs [0049] and [0057] of U.S. Publication No. 2005/0078889 of the present application that is attached at the end of this Reply. This Report clearly demonstrates the unexpected results not found in the conventional art, and only achieved by the present invention, as set forth in the claims of the present invention

Dependent Claims

The Examiner will note that dependent claims 4 and 5 have been cancelled, dependent claims 2 and 8 have been amended, and dependent claim 9 has been added.

All dependent claims are in condition for allowance due to their dependency from allowable independent claims, or due to the additional novel features set forth therein.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone Carl T. Thomsen (Reg. No. 50,786) at (703) 208-4030(direct line).

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Dated: July 3, 2008

Respectfully submitted,

By James M. Slattery
James M. Slattery
Registration No.: 28,380
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant

Attachments: One Sheet of Replacement Drawings (FIG. 3).

Report of the Experiment described in paragraphs [0049] and [0057] of U.S. Publication No. 2005/0078889 of the present application.

Experiment Report

This is a report of an experiment, which is described in paragraphs [0049] to [0057] of U.S. Publication No. 2005/0078889 and has been conducted for the same purpose.

1. Structure of bags (Bags A1 and A2) pertaining to the invention of the present application, and a bag (Bag B) to be compared thereto.

1-1. Front sheet and rear sheet (Bags A1, A2 and B)

A laminate sheet (sheet thickness of 75 micron) comprising a biaxially drawin nylon film (one layer) and a low-density polyethylene film (one layer) was used. The tensile ductility of the laminate sheet is 150%.

1-2 Bottom sheet of Bag A1

A laminate sheet (sheet thickness of 85 micron) comprising a low-density polyethylene film (two layers) and inextensible (non-extensible) nylon film (one layer) sandwiched between these low-density polyethylene films was used. The tensile ductility of the laminate sheet is 420%.

1-3 Bottom sheet of Bag A2

A laminate sheet (sheet thickness of 90 micron) comprising a low-density polyethylene film (two layers) and inextensible (non-extensible) nylon film (one layer) sandwiched between these low-density polyethylene films was used. The tensile ductility of the laminate sheet is 530%.

1-4 Bottom sheet of Bag B

A laminate sheet (sheet thickness of 75 micron) comprising a biaxially drawn nylon film (one layer) and a low-density polyethylene film (one layer) was used. The tensile ductility of the laminate sheet is 150%.

2. Experiment on tensile strength

[Description of experiment]

The tensile strength between the front sheet and the rear sheet and the bottom sheet was measured.

[Measurement method]

The measurement method was one based on the "Bag Heat Seal Strength Test" prescribed in JISZ 0238. In each of the bags (Bags A1, A2 and B), the front sheet and the rear sheet were pulled upward and the bottom sheet was pulled downward with respect to the contact points P shown in FIG. 4 in Publication of US2005/0078889 at a relative moving speed of 300 mm/min., and the load when the sheets ruptured was measured. The load was measured three times.

[Results]

The bottom sheet of Bags A1 and A2 of the present invention did not rupture until the end of the experiments, while the bottom sheet of Bag B ruptured. Please see the chart below.

Type of bag	Bag A1	Bag A2	Bag B
Load measured (N)	162.7	190.0	133.9
Result	The bottom sheet in the vicinity of the contact points was stretched (not ruptured).	The bottom sheet in the vicinity of the contact points was stretched (not ruptured).	The bottom sheet ruptured.

(1) Load measured shows the average of the result of three experiments.

(2) Load measured regarding Bags A1 and A2 shows the number at the end of the experiments, while Load measured regarding Bag B shows the number when the bag ruptured.

3. Bag-rupturing experiments by way of filling air

[Description of experiment]

Each of the article containing portion of Bags A1, A2 and B was filled with air. Then, weight was manually added in this state so that the bags were compressed. Chucks were not provided on the bags, but a check valve was provided not to leak air instead.

[Results]

The bottom sheet of Bags A1 and A2 of the present invention did not rupture until the end of the experiments, while the bottom sheet of Bag B ruptured. Please see the photographs below.

4. Evaluation of the aforementioned experiments

In the bag in this invention, the bottom sheet only stretched and the bags did not rupture, even when the contact points between the front sheet and the bottom sheet, and between the rear sheet and the bottom sheet, received the weight. Accordingly, the bags can maintain the dearated state, which is most important as a deaeratable bag. The experiments proved this.

[Photographs regarding the above-mentioned bag-rupturing experiments]

Photo 1-1. Bag A1 (pertaining to the invention of the present application) before the experiment.

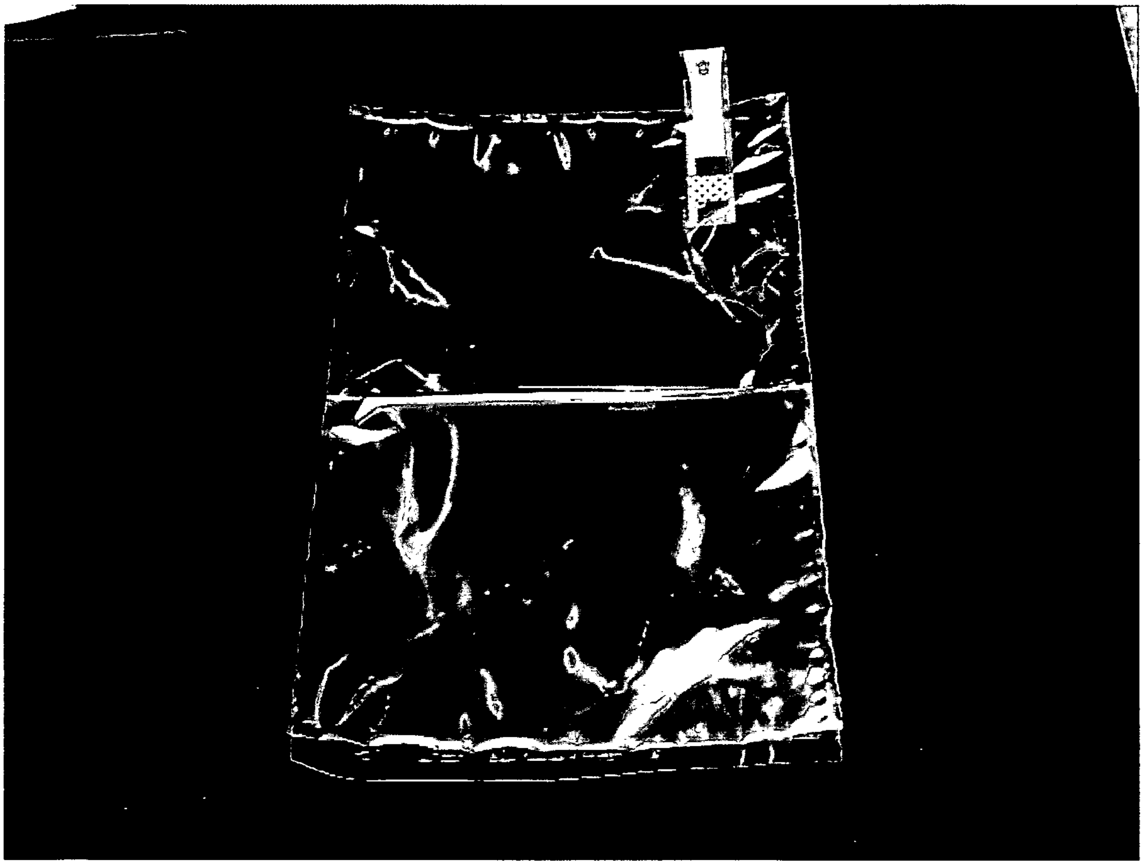


Photo 1-2. Bag A1 after the experiment.

The encircled portion shows a stretched part of the bottom sheet.

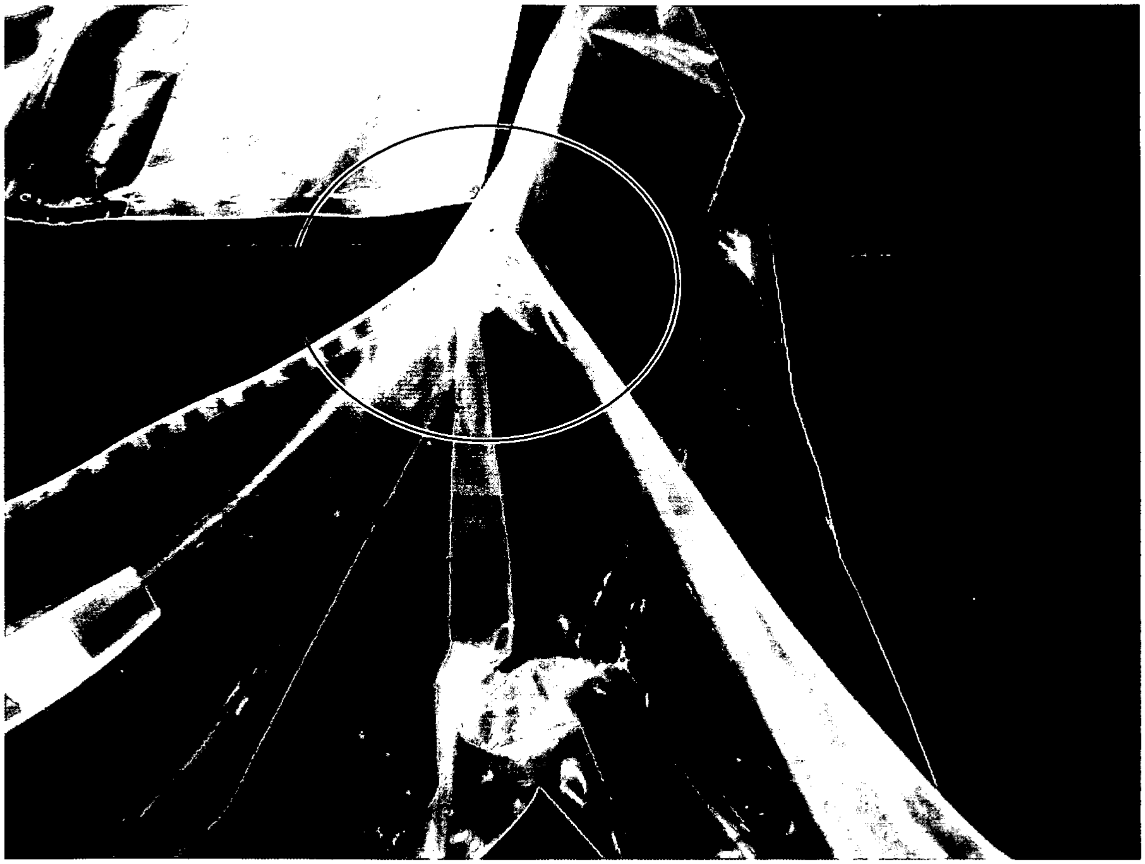


Photo 2-1. Bag A2 (pertaining to the invention of the present application) before the experiment.

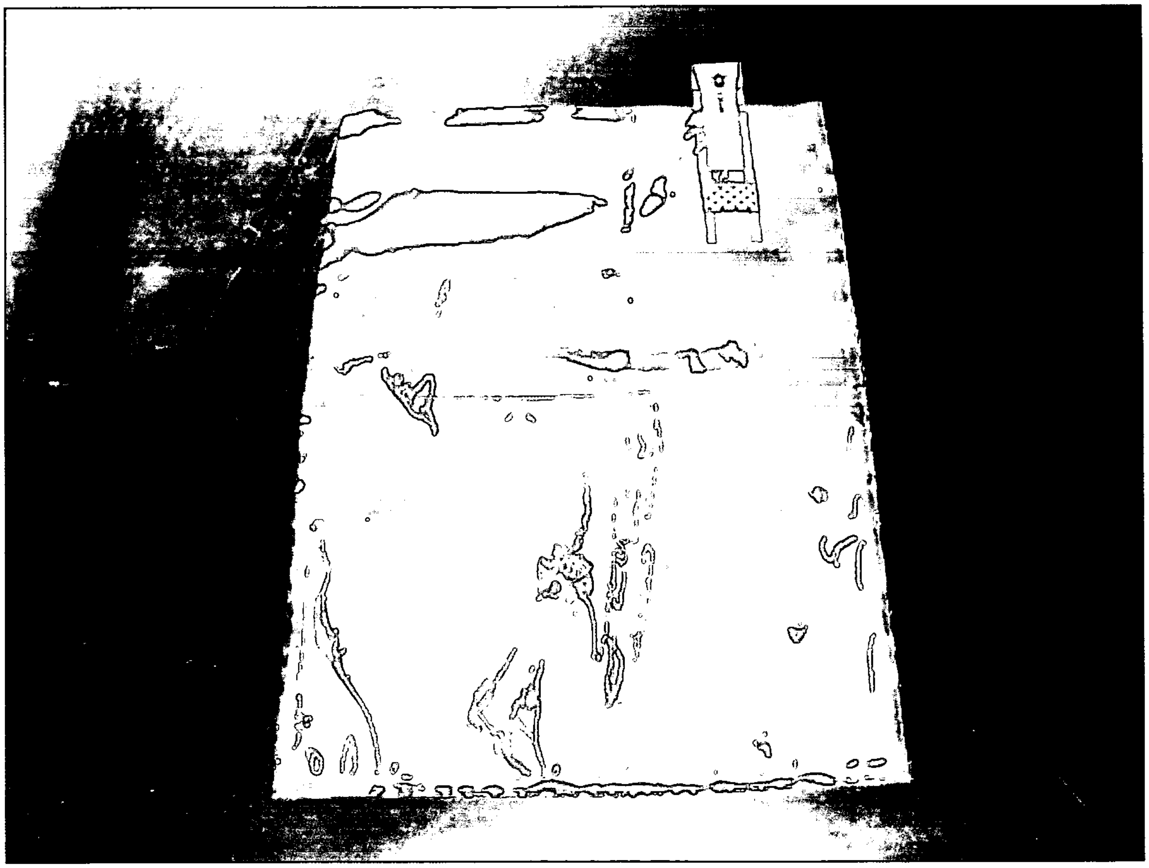
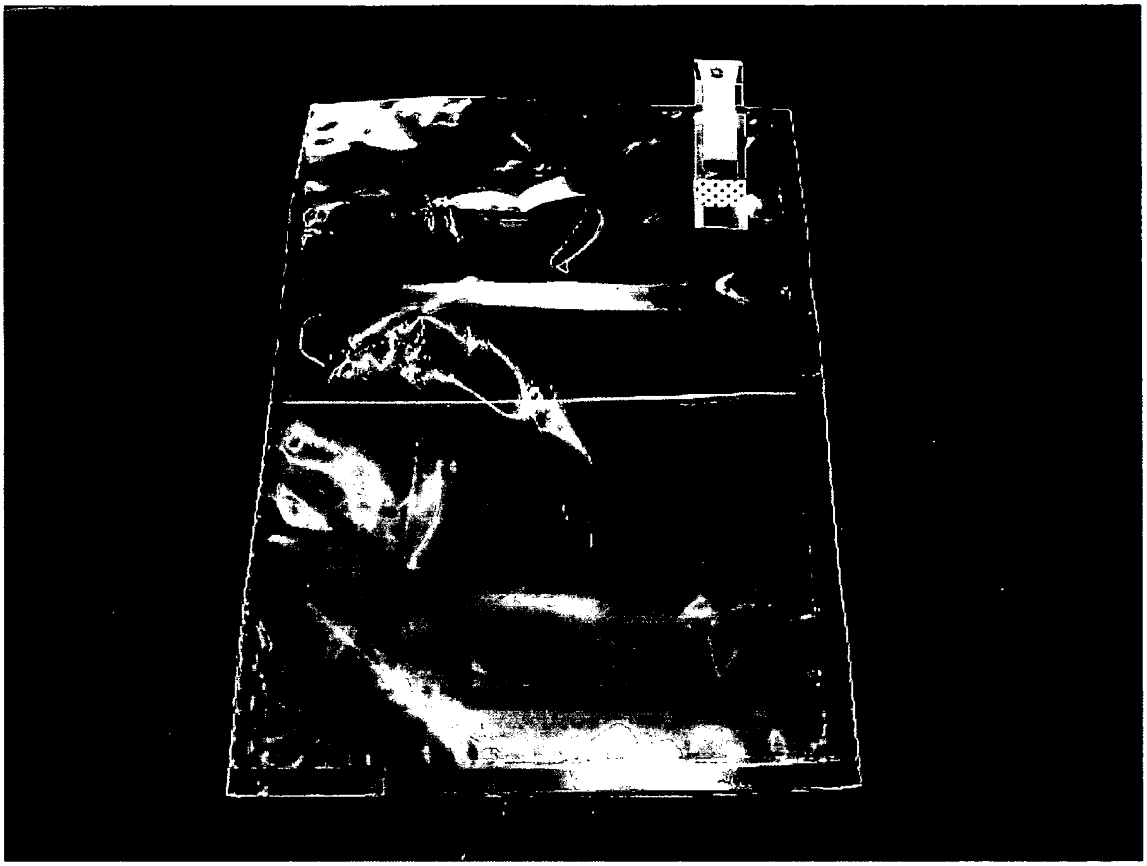


Photo 2-2. Bag A2 after the experiment.

The encircled portion shows a stretched part of the bottom sheet.

Photo 3-1. Bag B (to be compared to Bags A1 and A2) before the experiment.



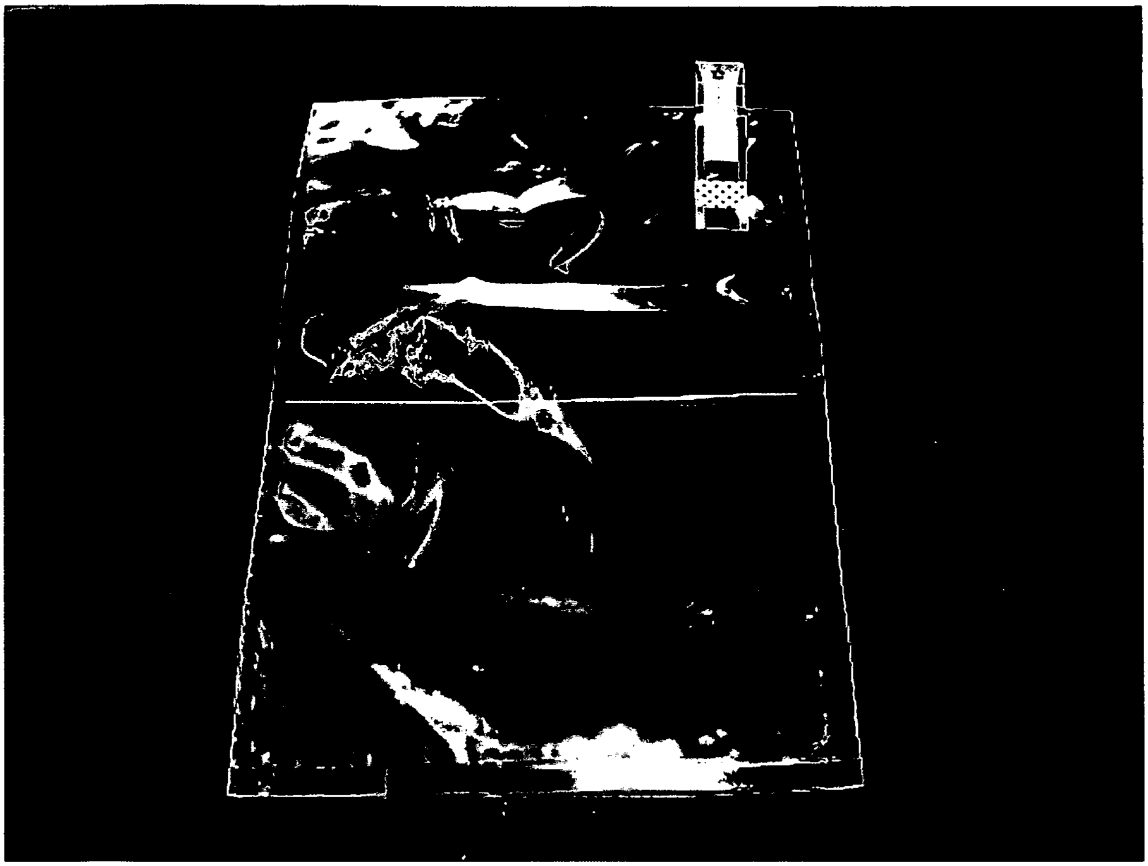


Photo 3-2. Bag B after the experiment.

The encircled portion shows a ruptured part of the bottom sheet.

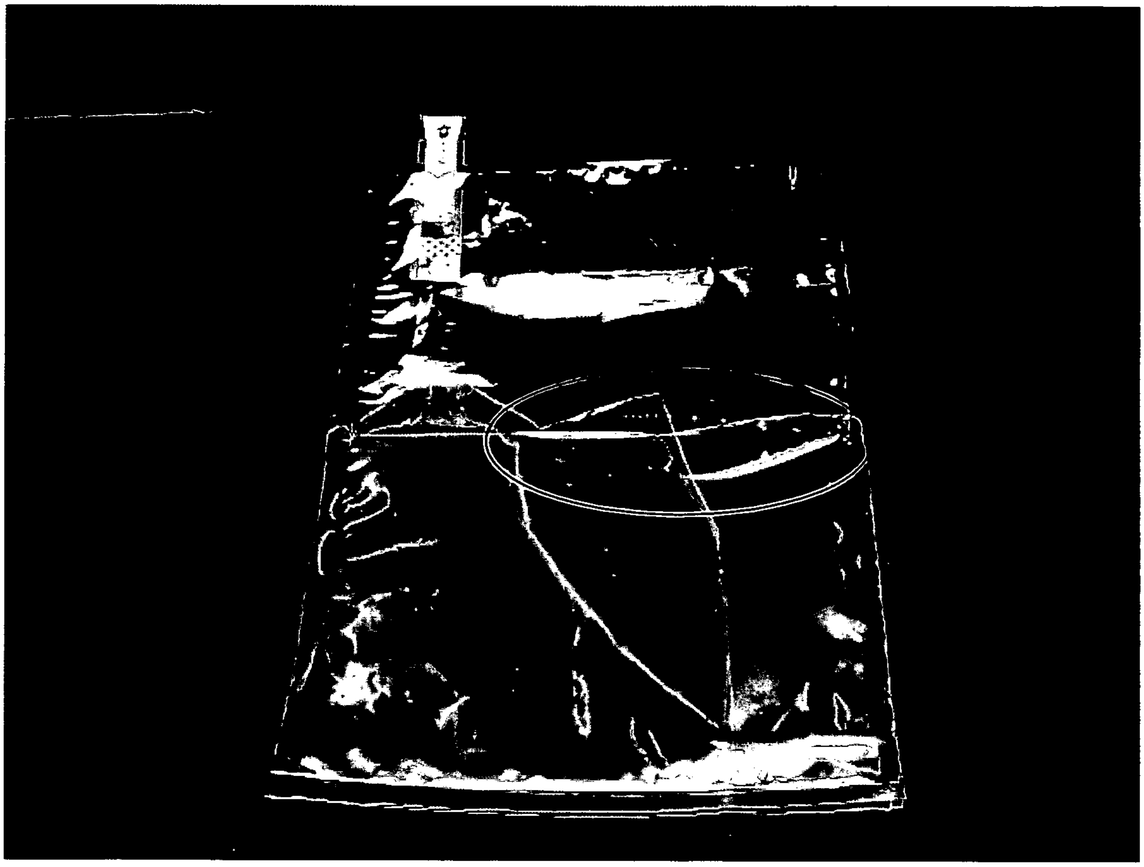


Photo 3-3. Bag B after the experiment.

This is an enlarged photo of the ruptured part of the bottom sheet with the sheet around the ruptured part flipped up.

The encircled portion shows the ruptured part of the bottom sheet.